

(No Model.)

S. F. LONG.
METALLIC ROD PACKING.

No. 494,818.

Patented Apr. 4, 1893.

Fig. 1.

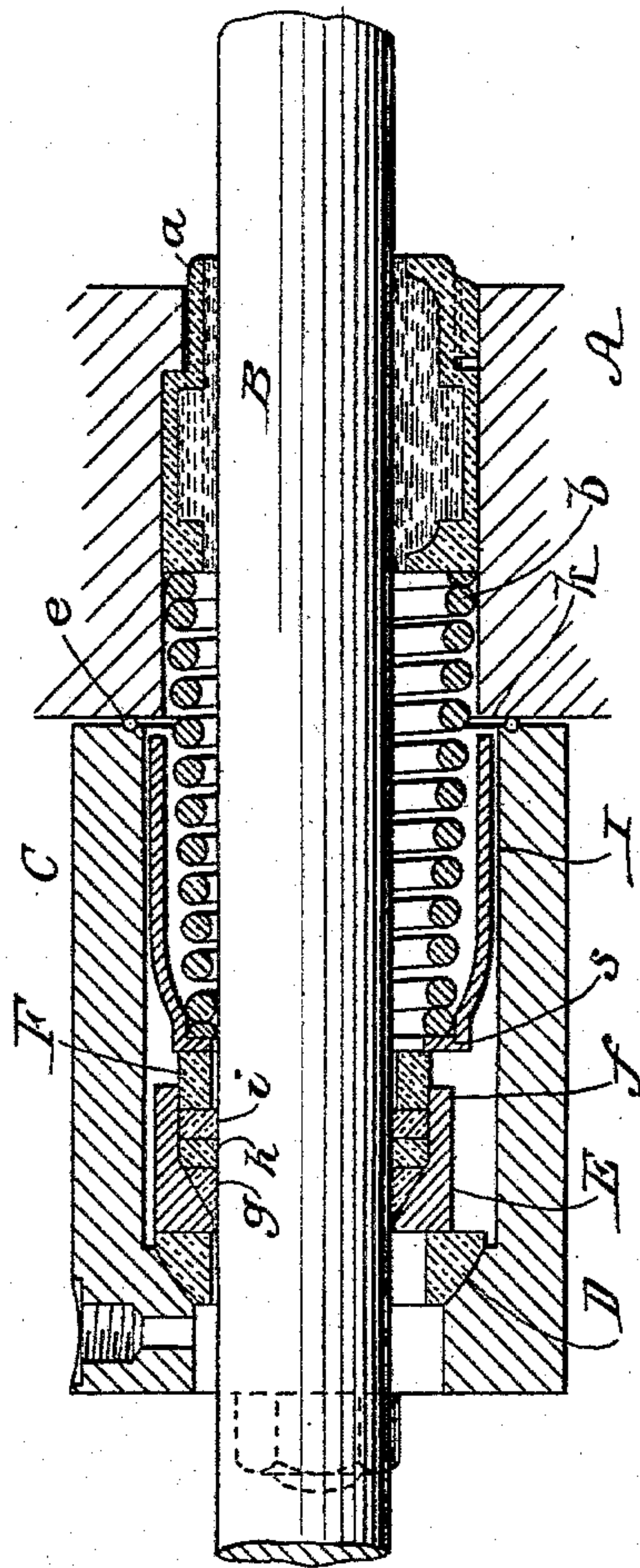
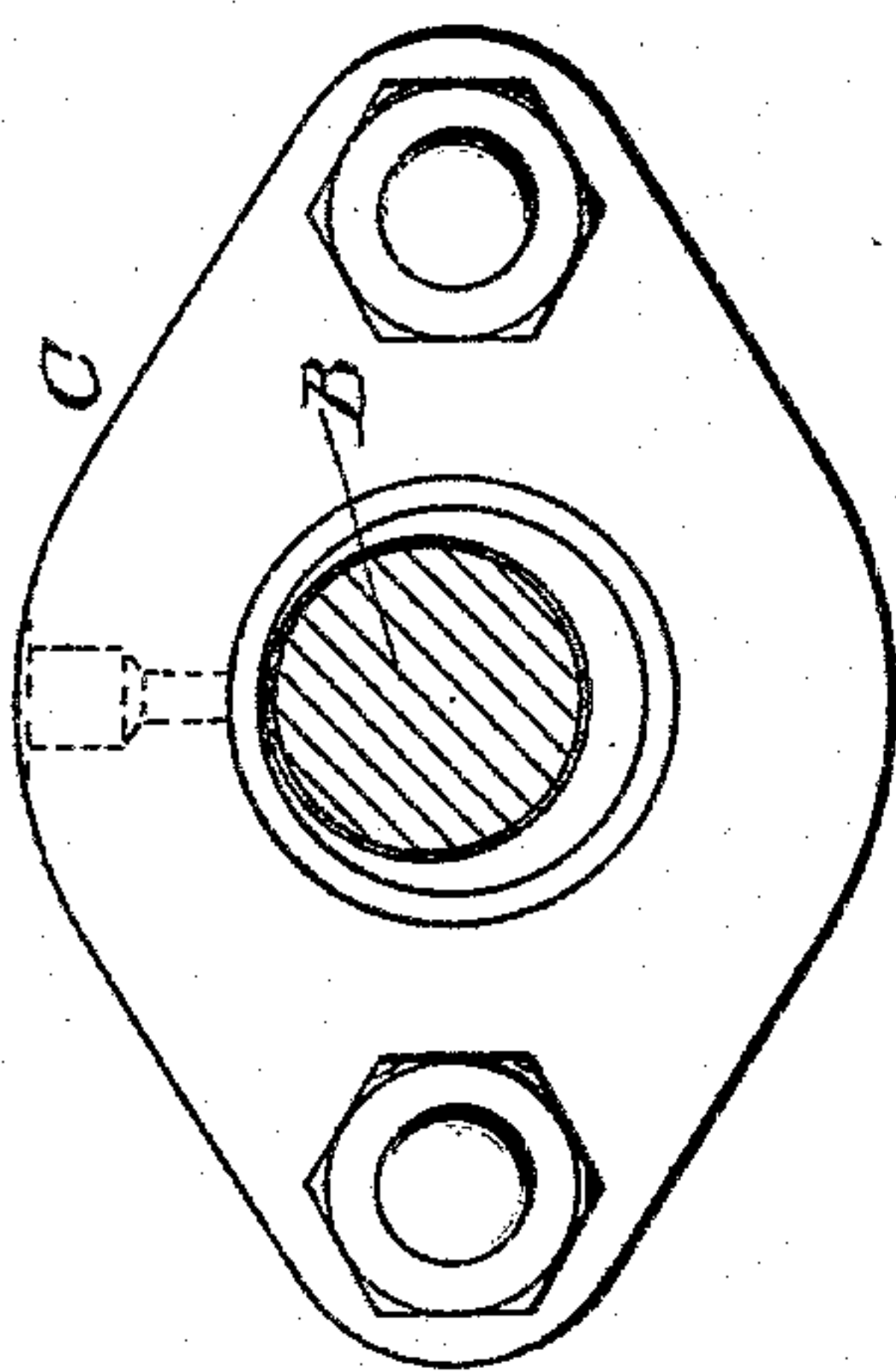


Fig. 2.



WITNESSES:

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UNITED STATES METALLIC PACKING COMPANY, OF PENNSYLVANIA.

METALLIC ROD-PACKING.

SPECIFICATION forming part of Letters Patent No. 494,818, dated April 4, 1893.

Application filed November 4, 1892. Serial No. 450,980. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL F. LONG, a citizen of the United States, residing at the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented new and useful Improvements in Metallic Rod-Packing, of which the following is a specification.

My invention relates to metallic rod packing constructed substantially as shown in Re-
10 issued Letters Patent No. 9,365, dated August 31, 1880, and granted to Martin Schneble, that is, so far as the packing itself is concerned. In Figure 2 of the aforesaid patent, there is shown a packing box, the inner face of the
15 cover of which has a concave surface. Seated against this shoulder is a ring with a convex outer and a plain inner surface. Bearing upon this inner surface is a packing receptacle, having a plain front face and tapering re-
20 cess in which are placed packing rings. In Fig. 1 of the patent, there is shown a follower which bears upon the packing rings, being constantly pressed forward by a spring.

In a companion application of mine, filed,
25 November 4, 1892, Serial No. 450,979 I have similarly referred to the construction disclosed in said re-issued patent, and have pointed out more at length certain objections incident to said patented arrangement. It
30 will be sufficient for present purposes to direct attention to the fact that in said patent, the follower is shown of such configuration and disposition that it is liable to work beneath the end edge of the receptacle and thus
35 become inoperative for its primary purpose to wit, forwardly pressing the packing rings. The liability referred to is increased by the fact that the follower has considerable transverse play on the rod, and can be canted or
40 tilted to engage one side of the receptacle.

To avoid the objections referred to in the foregoing, I have devised certain improvements, the subject matter of the present case showing the same adapted for use in connec-
45 tion with metallic packing for valve stems.

In the accompanying drawings forming part of this specification, Fig. 1, is a longitudinal sectional view of a construction embodying my improvements, and Fig. 2, is an end view
50 of the same.

The end wall A, of the valve chest has an

opening, through which the stem B, plays, a gland *a*, being seated in said opening. A tapering coiled spring *b*, bears at its rear against said gland.

The packing box cover C, is suitably bolted
55 on the end wall A, a wire gasket *e*, seated in a recess in the rear of cover insuring a steam tight bearing for the latter. Within the cover, adjacent to the front opening thereof, is a con-
60 cave shoulder, receiving the bearing ring D, convexed on its front side, and having a plane surface at its rear.

Within the cover chamber *f*, is the packing ring receptacle E, having a flat front face
65 bearing against the ring D, and provided with a tapering recess in which the packing rings *g, h, i*, of corresponding shape are located. A follower F, extends for a short distance within the receptacle E. This said follower is nor-
70 mally forwardly pressed by a cup sleeve I, the head *s* of which bears against the follower. The said sleeve I, contains that portion of the tapering spring *b*, which extends into the cover chamber; the forward coil of said spring be-
75 ing seated against the inner side of head *s*, of the sleeve.

By reference to Fig. 1 it will be noted that the transverse diameter of the cover chamber is greater than that of the opening in the wall
80 of the valve chest, so that a portion of said wall projects to present a shoulder *k*. The spring pressed cup sleeve I, normally causes the follower to hold the packing rings snugly within the receptacle, and thus secures a steam
85 tight packing for the rod. This receptacle E, is freely movable in all directions within the cover chamber, and this capability in connection with the ball bearing afforded by the ring D against which it bears, enables it to auto-
90 matically accommodate itself to variations in the stroke alignment of the stem, due to wear or otherwise.

In my said companion application, I have shown and described a follower extending into
95 the receptacle and pressing on the packing rings, said follower being provided with a lateral flange designed to limit rearward movement of the parts, when surface variations in the rod tend to engage the packing rings, 100
carry them rearward, and unduly compress the follower spring.

In packing boxes for valve stems, the conditions are such that an extended cover chamber is required and hence some additional agent is needed to limit the movement of the follower. The cup sleeve I, effects the desideratum as it will contact with the shoulder *k*, and cause the disengagement of the stem from the packing rings. If some provision for such disengagement were not made, the packing rings and follower would be carried back to such an extent that the spring would be unduly compressed, and the latter, when the engaging portion of the stem became worn or ground off, would be suddenly released to project the parts and damage the packing rings. The length and play of the cup sleeve are such that the movement of the follower will be limited to the recess in the chamber, and cannot therefore work into engagement with the rear edge of the receptacle. In the present case, the follower also closely embraces the stem so that it cannot be tilted or canted to cause it to engage the rear edge of the receptacle at one side.

The Schneble packing above mentioned has in it the elements of self-destruction due to the liability of the tilted follower to be violently forced at diametrically opposite parts against the packing and the receptacle and be broken. The Monroe patent No. 245,967, shows a follower which presses the packing and does not leave the packing receptacle, but in this case an independent bearing ring, such as the ring D, is not used between the packing receptacle and a curved bearing surface, hence all wobbling or side play of the piston rod or valve stem is sought to be accommodated by injurious frictional working of the packing itself within its receptacle.

The present invention combines the cup sleeve I, with a packing proper which avoids the disadvantages of the Schneble and Monroe packings. Furthermore, it will also be noticed that by the use of the cup sleeve I, which may readily be made of any proper

length to suit varying lengths of different caps or box covers C, the identical completely fitted parts D, E, *g*, *h*, *i*, F, may be used interchangeably with stems or rods B, and caps C, of any necessary length.

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I claim—

1. In a metallic packing for valve stems, the combination, with the valve chamber and the stem or rod movable therein, of the cap or cover having an interior chamber and concaved bearing shoulder, a bearing ring fitting said shoulder, a receptacle next said bearing ring, packing rings within the receptacle, a follower within the receptacle, a sleeve abutting the follower and extending inward to form a stop limiting inward movement of the follower and packing, and a spring within the sleeve normally pressing the follower against the packing rings; said follower being operatively incapable of movement from the interior chamber of the packing receptacle, substantially as described.

2. In a metallic packing for valve stems, the combination, with the valve chamber, the stem or rod B, and a cap or cover C, having an interior chamber *f*, and a concaved shoulder, of a bearing ring D, fitted to said concaved shoulder, a receptacle E, next the ring D, packing rings as *g*, *h*, *i*, within the receptacle, a follower F, bearing on the packing rings, a cup sleeve I, having an interior head flange *s*, and interposed between the follower F, and the valve chamber, and an expanding spring within the sleeve between its head flange *s*, and the valve chamber, said follower F, being operatively incapable of movement from the interior chamber of the receptacle E, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

SAMUEL F. LONG.

Witnesses:

L. L. DREW,
T. R. HILL.